WITHOUT PENCIL AND PAPER

By L. W. HENDERSHOTT

The first of the following problems may easily be solved with pencil and paper but it is not too difficult without their aid. The second is easy if you see the light, while the third is an old timer included just to keep the records clear.

Get in the game and send your contribution to the editor of the ENGINEER.

No. 13

The promoter of a billiard tournament, in which eight persons are entered, must pay a table charge of twenty-five cents per game. Each player meets each of the other players once. What is the total table expense?

No. 14

Two men leave towns thirty miles apart and walk toward each other, one at the rate of three miles per hour, and the other at the rate of two miles per hour. At the instant they start a fly leaves the nose of the two mile man and flies toward the three mile man at the rate of four miles per hour. It touches his nose and returns to the nose of the other man and so on until it is crushed between the men when they meet. How far does the fly travel?

No. 15

A man entered the visiting room of a penitentiary and looking through the bars at a convict said to the attendant, "Brothers and sisters I have none but this man's father is my father's son." It took the attendant some time to figure out the relationship.

(Answers on page 15)

ARC HOTTER THAN SUN

Using a special camera, General Electric engineers proved that carbon arcs, used in lighting, exceed the sun's surface temperature of 9,000 degrees F., and that some welding arcs reach 13,000 degrees. These were the first accurate measurements of electric arc temperatures.

The camera was used in timing the passage of a sound wave, set up by a loud spark, through an arc. The measurements were made, employing the fact that sound travels faster through a hot gas than a cool one.

NOVEL PARKING MACHINE

The Park-o-meter, which puts automobile parking in downtown districts on a nickel basis and automatically tattles on overtime parkers, is being demonstrated in various cities over the country.

The plan of this system is to mark off available downtown street parking space into twenty-foot sections and place one of the meters on the sidewalk at each section. Motorists in each section must place a nickel in the meter slot upon parking. This automatically causes the machine to show a green face and a hand which tolls off the minutes.

When the time allowed for the parking space expires, the green face disappears, thus automatically informing the patrolling officer that the car is parked overtime. The policeman then places a sticker on the car.

A survey showed that in non-meter parking zones twenty per cent of the motorists occupy eighty per cent of the parking space, while in the meter zones three times as many cars can park during the day.

It has been estimated that, after a meter was installed, it could pay for itself in six months. The cost of each meter is approximately fifty-eight dollars. In the plans worked out by many companies, the meter is the property of the city after the initial cost is discounted.

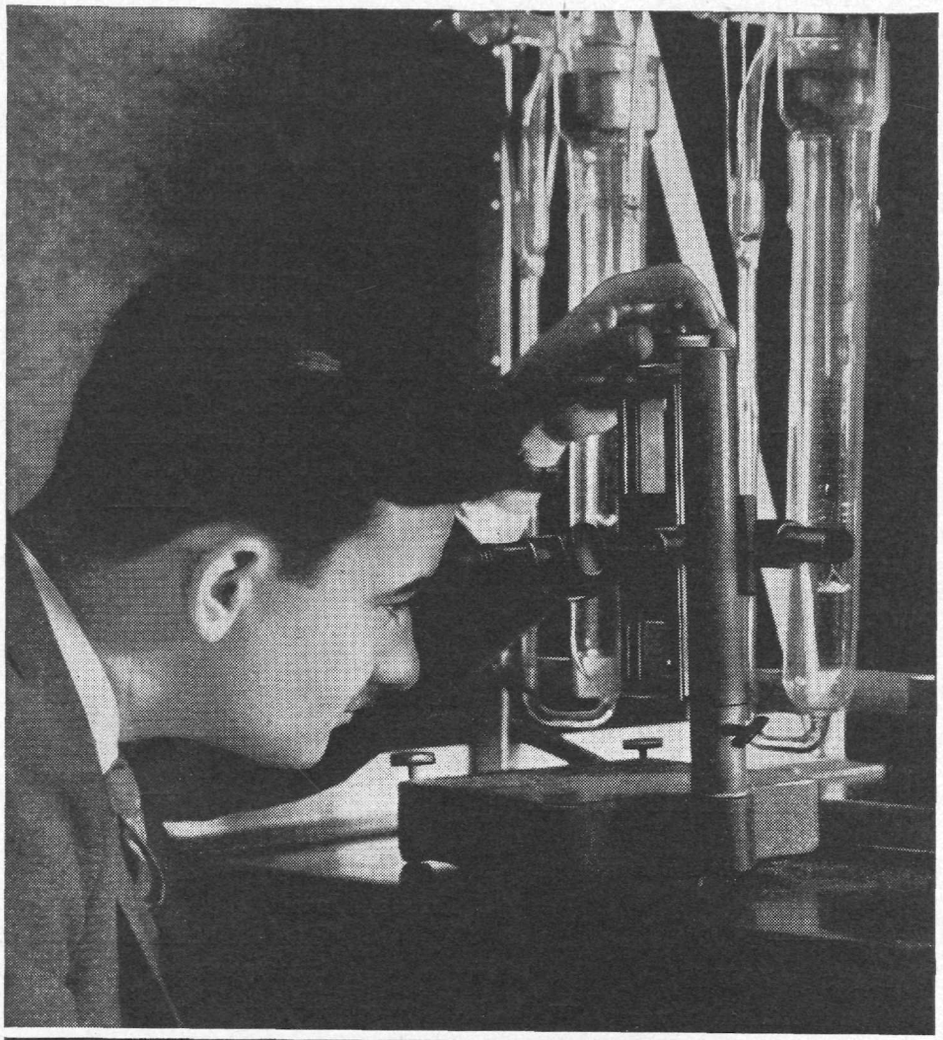
—*Science.*

COMPRESSED AIR IN MINING

A deafening roar splits the air. Small chunks of coal are heaved into space. Dangerous fumes from the exploded dynamite add another peril to the life of the miner.

A new method of coal mining has eliminated these dangerous fumes and the coal is recovered in larger and more valuable chunks. Into a drill hole in the face of the coal deposit is thrust a long steel cartridge. Air, to a pressure of 15,000 pounds to the square inch, is charged within the cartridge. When the miners are at a safe distance, a valve releases the charge. The air upon expanding heaves out the coal in large fragments, without shattering it. The cartridges may be used over and over again.

Carl P. Lecker, Littleton, N. H., jeweler, recently completed one of the world's smallest workable steam engines. His masterpiece has a cylinder 7-16 of an inch long, 3-4 of an inch high, made from a .22 cartridge. A tablespoon of water will half fill the boiler and run the engine for ten minutes.—*American Magazine.*



"Assets in the making"

THE work of Bell Telephone Laboratories might well be called "assets in the making." It deals with many problems whose solution will be of great future value to telephone users. ¶ The truth of this statement is indicated by improvements already developed and now in daily use. The convenient handset telephone, the dial system, new magnetic alloys, overseas and ship-to-shore radio telephony are just a few examples. ¶ Today more than 4000 men and women are carrying on this work to make tomorrow's telephone service still better.

Why not telephone home at least once each week? For lowest rates to most points, call station-to-station after 7 P.M. daily, or any time Sunday

BELL TELEPHONE SYSTEM

WITHOUT PENCIL AND PAPER

ANSWERS

No. 13

Twenty-eight games at twenty-five cents each equals seven dollars.

No. 14

The fly travels twenty-four miles. Solution.—The men approach each other at the rate of two plus three or five miles per hour and therefore meet in six hours. In this time the fly travels six times four miles or twenty-four miles.

No. 15

The convict was the visitor's son.
